

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (original) A method for encoding and decoding information, the method comprising the steps of:
 - a) using at least one mathematical function;
 - b) producing an encryption algorithm using the mathematical functions such that the algorithm has at least two parameters;
 - c) defining a decode key of a data stream by defining the value of at least one parameter;
 - d) defining information to be carried in a data stream by defining the value of at least one parameter;
 - e) producing a data stream using the encryption algorithm and the defined parameter values; and
 - f) decrypting the data stream where the decode key is known and used as a constraint in the equation such that the information is available,
wherein the encryption algorithm is selected such that decoding of the encryption algorithm would be ill-conditioned without the constraint.
2. (original) A method according to claim 1 where at least one of the mathematical functions used in the encryption algorithm is selected to be a non-periodic function.

3. (currently amended) A method according to claim 1 ~~or claim 2~~ where the information includes an authentication key, and including the step of validating the authentication key.

4. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ where information includes at least one mutation key, and including the step of using the mutation key to ~~modify~~ effect at least one of the next data stream created or received, the form of ordinate spacing used in the encryption algorithm, the weighting of at least one of the mathematical functions used in the encryption algorithm, the number of mathematical functions used in the encryption algorithm is effected by a mutation key, and at least the type of mathematical functions used in the encryption algorithm.

5 – 8. (cancelled)

9. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ and including the step of limiting the accuracy of the representation of the data stream by using at least truncation of the values of the data stream.

10 – 14. (cancelled)

15. (currently amended) A method according to claim 1 ~~any one of the preceding claim~~ and including the step of the data stream producer decrypting the produced data stream and

where decryption fails modifies the value of at least one parameter used to produce said data stream and produces a second data stream and continues the process until a data stream that correctly decrypts has been produced and discards all data streams that could not be decrypted.

16. (original) A method according to claim 15 where the parameters that are altered to allow a data stream that can be decrypted includes at least one mutation parameters.

17 – 19. (cancelled)

20. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ and including the step of allowing a user to select a value and influence the probability that produced data streams cannot be decrypted.

21 – 22. (cancelled)

23. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ where at least one of the parameters of the encryption algorithm carries information that may be defined as a password of an external system.

24 – 26. (cancelled)

27. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ where the storage area used to hold at least some of the parameter values that form an

authentication key is within the same substrate as the processor which encrypts the messages.

28. (currently amended) A method according to claim 1 ~~any one of the preceding~~ ~~claims~~ which includes the step of including a means to immediately overwrite or flush a temporary data store used in coding or decoding of a data stream.

29. (currently amended) A method according to claim 1 ~~any one of the preceding~~ ~~claims~~ and including the step of encrypting the produced data stream using conventional encryption means.

30. (currently amended) A method according to claim 1 ~~any one of the preceding~~ ~~claims~~ and including the step of encrypting at least some of the information prior to it being used to define the values of parameters of the encryption algorithm.

31 – 32. (cancelled)

33. (currently amended) A method according to claim 1 ~~any one of the preceding~~ ~~claims~~ where authentication between users includes a double handshake protocol.

34. (currently amended) A method according to claim 1 ~~any one of the preceding~~ ~~claims~~ that includes the step of issuing a unique registration number to each node.

35 – 36. (cancelled)

37. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ and including the step of using a protocol such that a first node who is on contact with both a second and third node may act as a start up host between the second and third node without a host and so provide a distributed start up means.

38. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ and including a step of having a plurality of stored starting decode keys between node pairs on each node such that on a communication failure reconnection may occur rapidly.

39. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ in which the method is used in nested mode such that a first encryption algorithm is used to authenticate between users and then a second encryption algorithm is used to transfer useful information.

40. (currently amended) A method according to claim 1 ~~any one of the preceding claims~~ where the information stored includes that of tokens of value that become the property of the owner of the registration number due to a purchase made by means of the invention where the tokens may be exchanged for further goods or services.

41. (cancelled)

42. (currently amended) Apparatus comprising transmitting means receiving means,

processing means and operating instructions allowing decryption of a signal according to the method of claim 1 ~~any one of the preceding claims~~.

43. (cancelled)